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## SHORT COMMUNICATIONS

### PEREGRINE FALCON NEST DEFENSE AGAINST A GOLDEN EAGLE

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In the southern portion of the Colorado Plateau, the Peregrine Falcon (*Falco peregrinus*) shares canyon nesting sites and hunting areas with Golden Eagle (*Aquila chrysaetos*), the Prairie Falcon (*Falco mexicanus*), the Turkey Vulture (*Cathartes aura*), the Red-tailed Hawk (*Buteo jamaicensis*) and the Common Raven (*Corvus corax*). It is not uncommon to see these species flying in the vicinity of Peregrine eyries in Zion National Park. All species listed above nest within a ½ km rad of a Peregrine eyrie where the incident reported herein occurred.

The canyon in which the eyrie defense took place is oriented east-west with the base of the cliff at an elevation of 1798 m. The cliff is 688 m in height. The Peregrine eyrie was located about 50 m below the top of the cliff.

By early May Peregrine Falcons in the park are well into incubation activities. The pair at the eyrie of interest followed a fairly regular incubation pattern. The male arrived at the eyrie between 0930 and 1000 H. The female left the nest-site, flew up to the cliff top, preened briefly and departed to hunt. She returned to the eyrie between 1400 and 1430 H and relieved the male.

At 0950 H on 8 May 1985 an adult Golden Eagle passed slightly below the Peregrine eyrie soaring west along the cliff face. The female Peregrine left the nest-site and attacked the eagle, striking it heavily on the back between the wings. The male Peregrine appeared over the top of the cliff and joined in the attack. During the attack, the eagle rolled over and attempted to use its feet in defense but was not able to react quickly enough to the stoops from both falcons. The simultaneous attacks caused the eagle to collide with the cliff wall several times, after which the eagle had difficulty regaining its balance and in re-orienting itself.

Finally, the female Peregrine stooped and struck the eagle in the head or neck. The eagle dropped inert with no attempt to fly and fell approximately 184 m into trees on one of the ledges on the cliff face. The female Peregrine circled the spot where the eagle had disappeared while the male entered the eyrie. It was not possible to retrieve the eagle since the trees were located on a ledge 244 m above the canyon floor. It is not known whether the Golden Eagle was killed but it never reappeared during the remainder of the observation period. The female Peregrine flew back to the top of the cliff and perched. Every few minutes for the next 40 min she left her perch and flew

back over the area where the eagle had fallen. The female finally left and flew south disappearing over the top of the cliff. She returned to the eyrie at 1420 H and the male flew to the top of the cliff and perched. He stayed for a short time and then flew down the canyon west out of sight. Neither falcon was again seen to circle the site where the Golden Eagle had disappeared. Observations were continued during the remainder of the day until 1900 H.

The following observations during the eyrie defense were noted. The female Peregrine vocalized during the entire incident but the male did so only a few times. The female was particularly persistent in her attacks and several times struck the eagle hard enough to force it to fall two-three m before regaining flight. The male's attack consisted of a series of swift strikes to the eagle's back and wings. The male always maneuvered to attack from the direction of the sun while the female's attack did not demonstrate any pattern.

Interspecific interactions between Peregrine Falcons and the other raptors using the same nesting areas are not unusual. (Nelson, M. W. The status of the Peregrine Falcon in the northwest. In J. J. Hickey, ED. Peregrine Falcon populations: their biology and decline. Univ. Wisconsin Press, Madison, 1969; Nelson, R. W. Some aspects of breeding behavior of Peregrines on Langara Island, British Columbia. Ph.D. Dissertation, Univ. Calgary, Alberta, 1970; Porter, R. D., and C. M. White, The Peregrine Falcon in Utah, emphasizing ecology and competition with the Prairie Falcon. Brigham Young Univ. Bull., 1973; Ratcliffe, D. Breeding density in the Peregrine Falcon (*Falco peregrinus*) and Raven (*Corvus corax*) *Ibis* 104. 13-39, 1962; Walton, B. *Raptor Res.* 12(1/2):46-47, 1978) Generally, observations in Zion National Park reveal that Golden Eagles and Prairie Falcons receive more serious attacks from Peregrines when encounters occur. Attacks on these species are prolonged and usually continue until the intruding bird is driven from the area. Other species mentioned at the beginning of this paper elicit a few stoops from Peregrines but the aggressive behavior is less intense and shorter in duration.

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